



Figure 2. Montana System and External Battery Mounted on a Motor Grader

2.3.2.3 Video Camera

A video camera (camcorder) is used to record the activity pattern of the construction vehicle at the construction site. The camcorder is set up in a location that enables it to observe all activities of the construction vehicle, but without interfering with the work of the construction vehicle. Figure 3 shows a research team member using the camcorder to record activity of a vehicle at a construction site.

The camcorder records the following:

- The typical activity mode of operation
- The type of work being done at the site
- The project site characteristics, including terrain and weather

Enough video data is obtained to document the typical work activities and patterns being measured and the activity modes of the construction vehicle. This can usually be done with approximately 15 to 30 minutes of video. It is not necessary to record everything that the vehicle does, but only those activities that represent the typical activity modes for which data is collected. In addition, a general panoramic view of the job site is recorded to show the working conditions of the vehicle. Essentially, the video enables the data collection team to gather another form of data (visual) regarding the site, the vehicle, and the work performed by the vehicle. This is done to allow a visual analysis in case anomalies arise in the data that might be explained by an unusual or unanticipated duty cycle or operator activity.